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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/536,637	03/28/2000	Hitoshi Nakano	684.2985	5659

5514 7590 12/05/2003

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EXAMINER

CIRIC, LJILJANA V

ART UNIT PAPER NUMBER

3753

DATE MAILED: 12/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/536,637

Applicant(s)
Hitoshi Nakano

Examiner

Ljiljana V. Ciric *LVC*

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Sep 30, 2003 and Nov 3, 2003
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 4-9, 11, and 18-21 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-9, 11, and 18-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on Feb 6, 2003 is/are a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other:

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DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 30, 2003 has been entered.

2. Claims 1, 2, 4 through 9, 11, and 18 through 21 remain in the application, all as amended.

Response to Arguments

3. Applicant's arguments filed on September 30, 2003 have been fully considered and are not persuasive.

Again, as a preface to the following traversal of applicant's arguments, the examiner hereby notes that the claims in a pending application should be given their *broadest* reasonable interpretation. See In re Person, 181 USPQ 641 (CCPA 1974).

Also, once again in response to applicant's arguments that the applicant's claims distinguish from the *Endo* reference, applicant is respectfully reminded once again that claims directed to apparatus **must** be distinguished from the prior art in terms of structure rather than function. In re Danly, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). Also, once again, applicant is reminded that "[A]pparatus claims cover what a device *is*, not what a device *does*."

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(Emphasis in original). Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). Thus, absent a recitation of distinguishing structure, little or no patentable weight is given to the functional or intended use limitations in the claims [such as “for exchanging heat between the coolant and the supply of air supplied into said chamber” as recited in claim 1 of the instant application] on which applicant relies for patentability.

Furthermore, the examiner hereby reiterates in response to the aforementioned arguments that the material or article worked upon also does not limit apparatus claims, and that the intended manner of operating a device or apparatus also does not differentiate an apparatus claim from the prior art in a patentable sense. For example, “Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim.” See Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969). Furthermore, “inclusion of materials or article worked upon by a structure being claimed does not impart patentability to the claims. See In re Young, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Finally, a claim containing a “recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus” if the prior art apparatus teaches all the structural limitations of the claim. See Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on

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combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant's arguments thus fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

Applicant's arguments also thus do not comply with 37 CFR 1.111(c) because they do not clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. Further, they do not show how the amendments avoid such references or objections.

Claim Objections

4. Claims 1, 2, 4 through 9, 11, and 18 through 21 are objected to because of the following informalities: "encloses an equipment" [claim 1, line 2; claim 21, line 2] should be replaced with "encloses equipment" or similar, for improved clarity and readability; the alternative pieces of equipment recited in claim 11 should be recited *as part of a proper Markush group* for improved clarity, as previously indicated (i.e., "is at least one of an exposure apparatus, an inspection apparatus and a measuring apparatus" should be replaced with "at least one piece of equipment chosen from the group consisting of an exposure apparatus, an inspection apparatus and a measuring apparatus" or similar, as appropriate; and, "the semiconductor manufacturing equipment" [claim 18, lines 1-2] should be replaced with "the equipment" for improved consistency and clarity. Appropriate correction is required.

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Claim Rejections - 35 U.S.C. § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 6 and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claim 6 as written, it is not clear whether or not the limitation “provided between” is intended to indicate that the reservoir and the pump are both operably connected to the first and second heat exchangers *and* thus also disposed between the two heat exchangers or whether the pump and the reservoir are merely disposed between the two heat exchangers but not necessarily directly and operably connected therewith, thus rendering indefinite the metes and bounds of protection sought.

With regard to claim 21, applicant has failed to adequately disclose equivalents for those elements now claimed using means-plus-function language (i.e., “first heat exchanger means for exchanging heat between the refrigerant and a coolant” and “second heat exchanger means for exchanging heat between the coolant and the supply of air supplied into said chamber”). Is any heat exchanger structure which allows heat exchange between two different fluids readable on each of the aforementioned heat exchanger means? Or, does this require certain particular features? Applicant’s response to the previous Office action has failed to fully address this matter as required, since merely pointing out that there is support in the specification for reciting an

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element does not answer for the record the above questions. Applicant does not need to avoid using the abovementioned means-plus function limitations, but merely is required to answer the above questions for the record or to provide persuasive arguments as to why it is unnecessary to do so. Applicant is reminded that although 35 U.S.C. 112, sixth paragraph, statutorily provides that one may use means-plus-function language in a claim, one is still subject to the requirement that a claim particularly point out and distinctly claim the invention. Therefore, if one employs means-plus-function language in a claim, one must set forth in the specification an adequate disclosure showing what is meant by that language. See *Donaldson*, 16 F.3d at 1195, 29 USPQ2d at 1850; see also *B. Braun Medical, Inc. v. Abbott Lab.*, 124 F.3d 942, 946, 42 USPQ 2d 1881, 1884085 (Fed. Cir. 1997).

Claim Rejections - 35 U.S.C. § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. As best can be understood in view of the indefiniteness of claim 21, claims 1, 2, 4 through 9, 11, and 18 through 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Endo* (filed on March 28, 1997) in view of *Tyler* (both of record).

Endo discloses the apparatus essentially as claimed, including, for example: a chamber or enclosure 2 enclosing semiconductor manufacturing equipment or, more specifically, projection

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exposure apparatus 2A; a “refrigerator” including the various elements of the system through which refrigerant 23 circulates; a first heat exchanger or cooler 20 for exchanging heat between the refrigerant 23 and the liquid coolant 4; a second heat exchanger or freezer 22 for indirectly exchanging heat between the air flowing through the ducts of the temperature control system 3 and refrigerant 23; an air blower or fan 9 or 15; a temperature-controlled heater 7 or 13 for heating the supply of air at a predetermined temperature, wherein heater 7 has a corresponding temperature sensor 5 associated therewith while heater 13 has a corresponding temperature sensor 11 associated therewith; a temperature sensor 17 which is disposed inside the chamber 2 and which reads on the measuring equipment as cited in claim 11; a pump 21; a temperature sensor 11 which is disposed adjacent mask R and which reads broadly on the mask inspection equipment as cited in claim 19. The source of the cooling water 24 is broadly readable on the reservoir as recited in claim 6 of the instant application.

While *Endo* does not specify whether either of temperature-controlled heater 7 or 13 is an electric heater or a heating heat exchanger, it is a well-known matter of design choice in the art of HVAC design to use either kind of heater in air conditioning systems and it is furthermore taught by *Tyler* to use an electric heater for heating the supply of air to a predetermined temperature in a controlled-environment test chamber in order to enhance temperature control of the supply air since the operation of an electric heater is generally more readily controlled.

While *Endo* merely provides a schematic system diagram of the disclosed apparatus, and hence does not specify the exact spatial locations of the various elements of the system within the

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apparatus (such as the reservoir, the pump, and the first and second heat exchangers as cited in claim 6 of the instant application), absent unexpected results, it is nevertheless not patentably significant to merely shift the location of parts within an apparatus. See *In re Japikse*, 86 USPQ 70 (CCPA 1950).

While *Endo* also does not specify the refrigerator or refrigerant subsystem as comprising a compressor and a condenser per se, Official Notice is taken hereby that it is notoriously well-known in the art of refrigeration to include a compressor and a condenser as part of a refrigerator or refrigeration system in order to generate the phase and temperature changes necessary for the operation of a refrigeration system.

Similarly, while *Endo* discloses the coolant as comprising a liquid, *Endo* does not specify, for example, the coolant as being water or a fluoride inert liquid or an anti-freeze liquid as claimed in the instant invention. Nevertheless, Official Notice is hereby taken that it is conventional to use any one of water, anti-freeze liquids, and fluoride inert liquids as coolants in air conditioners.

It would thus have been obvious to one skilled in the art at the time of the invention to choose, based on specific performance/design criteria, any one of a number of known coolants, including water or a fluoride inert liquid, in order to, for example, optimize the performance of the air conditioner under the expected operating conditions.

It would thus also have been obvious to one skilled in the art at the time of invention to have one of the temperature-controlled heaters 7 or 13 of *Endo* be an electric heater as taught by

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Tyler in order to facilitate the responsiveness of the heater to changes in temperature and thus to the specific heating requirements of the apparatus at any given time.

Finally, it also have been obvious to one skilled in the art at the time of invention to both include a compressor and a condenser as part of the refrigerant-carrying loop of the apparatus in order to allow for the phase and temperature changes associated with refrigeration-based heating and cooling as desired, and also to rearrange the location of the various parts of the system relative to each other in order to accommodate specific spatial design constraints, for example.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. *Kim (filed May 3, 2000)* discloses a temperature-controlled semiconductor manufacturing facility.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ljiljana (Lil) V. Ciric, whose telephone number is (703) 308-3925.

Applicant is encouraged to contact the examiner for clarification of any portion of this Office action if needed.

While she works a flexible schedule that varies from day to day and from week to week, Examiner Ciric may generally be reached at the Office during the work week between the hours of 10 a.m. and 6 p.m. ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Scherbel, can be reached on (703) 308-1272.

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The NEW central official fax phone number is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0861.

lvc

November 28, 2003



LJILJANA V. CIRIC
PRIMARY EXAMINER
ART UNIT 3753